

## **CORRECTIVE MEASURES IMPLEMENTATION SCOPE OF WORK**

### **PURPOSE**

This Scope of Work ("SOW") sets forth the requirements for the implementation of the design, construction, operation, maintenance, and monitoring of the corrective measures or measures pursuant to the Final Administrative Order on Consent ("Consent Order" or "Order") to which this SOW is attached. The work performed under this Order will implement the corrective measures that have been selected by EPA in the Final Decision and Response to Comments ("FDRTC") and any amendments thereto. The Respondent will furnish all personnel, materials, and services necessary for the implementation of the corrective measure or measures.

### **SCOPE**

The Corrective Measures Implementation consists of four tasks:

#### Task I: Corrective Measures Implementation Work Plan

- A. Management Plan
- B. Community Relations Plan
- C. Sampling and Analysis Plan
- D. Corrective Measures Permitting Plan
- E. Supplemental Field Investigation Work Plan

#### Task II: Corrective Measure Design

- A. Design Plans and Specifications
- B. Operation and Maintenance Plan
- C. Cost Estimate
- D. Construction Quality Assurance Objectives
- E. Health and Safety Plan
- F. Sampling and Analysis Plan
- G. Final CMI Design

#### Task III: Corrective Measures Construction

- A. Inspections
- B. CMI Report

#### Task IV: Reports

- A. Progress Reports and Assessment Reports
- B. CMI Work Plan
- C. CMI Design Report
- D. CMI Report

Further specifications of the work outlined in this SOW will be provided in the Corrective Measures Implementation Work Plan and subsequent plans to be approved by EPA. Variations from the SOW will be made, if necessary, to fulfill the objectives of the Corrective measures set forth in the FDRTC and any amendments thereto.

Additional studies may be needed as part of the Corrective measures Implementation to supplement the available data. At the direction of EPA for any such studies required, the Respondent shall furnish all services, including field work, materials, supplies, plant, labor, equipment, investigations, and superintendence. Sufficient sampling, testing and analysis shall be performed to optimize the required treatment and/or disposal operations system.

#### TASK I: CORRECTIVE MEASURES IMPLEMENTATION WORK PLAN

The Respondent shall prepare a Corrective Measures Implementation ("CMI") Work Plan. The CMI Work Plan shall outline the design, construction, operation, maintenance and monitoring of all actions taken to implement the Corrective measures as defined in the Order and the FDRTC and any amendments thereto. This CMI Work Plan will include the development and implementation of several plans, which require concurrent preparation. It may be necessary to revise plans as necessary during the performance of this Order. The CMI Work Plan includes the following:

##### A. Management Plan

The Respondent shall prepare a Management Plan which will include:

1. Documentation of the overall management strategy for performing the design, construction, operation, maintenance, and monitoring of corrective measure(s);
2. Description of the responsibility and authority of all organizations and key personnel involved with the implementation;
3. Description of the qualifications of key personnel directing the CMI, including contractor personnel;
4. Conceptual design of the treatment and/or disposal system or any corrective measures to be installed as set forth in the requirements of the FDRTC;
5. An outline of proposed field activities necessary to complete the CMI Design;
6. Proposed locations of groundwater monitoring wells and a detailed well development plan;
7. Proposed discharge options for treated ground water, with a proposed option upon which the CMI Design will be based;
8. Proposed detailed performance criteria for groundwater treatment;

9. A description of how the conceptual design is expected to meet the technical requirements of the FDRTC and any amendments thereto; and

10. Flow chart and schedule of work to be performed during the CMI.

#### B. Community Relations Plan

The Respondent shall submit and/or revise the Community Relations Plan to include any material changes in the level of concern or information needs of the community during design and construction activities.

1. Specific activities which must be conducted during the design stage are the following:

a. The facility Community Relations Plan is to reflect knowledge of citizen concerns and involvement at this stage of the process; and

b. Prepare and distribute a public notice and an updated fact sheet at the completion of engineering design.

2. Specific activities to be conducted during the construction stage could be the following: depending on citizen interest at a facility at this point in the corrective action process, community relations activities could range from group meetings to fact sheets on the technical status.

#### C. Sampling and Analysis Plan

Respondent shall submit and/or revise the Sampling and Analysis Plan describing work to be performed during Corrective Measures Design, the 12 month evaluation Period, and after completion of construction. The Sampling and Analysis Plan shall be comprised of:

1. Data quality objectives for design phase activities,

2. A Quality Assurance Project Plan (QAPP),

3. A Field Sampling Plan, and

4. A Data Management Plan describing the steps to be followed in compiling, organizing, and reviewing data collected in accordance with the Sampling and Analysis Plan and identifying the frequency of periodic data reviews and evaluations.

The Sampling and Analysis Plan will include the existing soil and well sampling and analysis program, with appropriate revisions as necessary.

#### D. Corrective Measures Permitting Plan

Respondent shall submit a Corrective Measures Permitting Plan identifying all federal,

state, interstate and local permits and approvals required for the implementation of the Corrective Measures required by this Consent Order, and for the implementation of any institutional controls required by this Consent Order. The plan shall also identify all agreements or other arrangements with adjoining landowners, if any, known by Respondent to be necessary for the implementation of the Corrective measures, including, but not limited to, site access and easement agreements. The plan shall include a schedule indicating the time needed to obtain all such approvals and permits and to enter into such agreements and arrangements (this may be integrated with the design/implementation schedule items).

#### E. Supplemental Field Investigation Work Plan

Respondent shall submit a work plan setting forth the protocols and methodologies for any additional hydrogeologic investigations or other field work, if any such additional investigation or field work is necessary, for the proper design of the groundwater extraction and treatment systems. The work plan shall include an expeditious schedule for the completion of any such supplemental field work.

### TASK II: CORRECTIVE MEASURES DESIGN

The Respondent shall prepare final construction plans and specifications to implement the Corrective measures at the facility as defined in the Corrective measures set forth in the FDRTC and any amendments thereto.

#### A. Design Plans and Specifications

The Respondent shall develop clear and comprehensive design plans and specifications which include, but are not limited to, the following:

1. Discussion of the design strategy and the design basis, including:
  - a. Compliance with all applicable or relevant environmental and public health standards;
  - b. Minimization of environmental and public health impacts; and
  - c. Update schedules, if necessary, from commencement through completion of construction of the CMI.
2. Discussion of the technical factors of importance including:
  - a. Use of currently accepted environmental control measures and technology;
  - b. The constructibility of the design; and
  - c. Use of currently acceptable construction practices and techniques.

3. Description of assumptions made and detailed justification of these assumptions;
4. Discussion of the possible sources of error and references to possible operation and maintenance problems;
5. Detailed drawings of the proposed design including:
  - a. Qualitative flow sheets; and
  - b. Quantitative flow sheets.
6. Tables listing equipment and specifications;
7. Tables giving material and energy balances;
8. Appendices including:
  - a. Sample calculations (one example presented and explained clearly for significant or unique design calculations);
  - b. Derivation of equations essential to understanding the report; and
  - c. Results of laboratory or field tests.

#### B. Operation and Maintenance Plan

The Respondent shall prepare or revise the Operation and Maintenance ("O&M") Plan to cover both implementation and long term maintenance of the Corrective measures. The O&M Plan is to identify the processes to occur, submissions during O&M, and schedule for O&M activities consistent with remedial objectives set forth in the FDRTC and any amendments thereto. The plan shall be composed of the following elements:

1. Description of normal O&M:
  - a. Description of tasks for operation;
  - b. Description of tasks for maintenance;
  - c. Description of prescribed treatment or operation conditions; and
  - d. Schedule showing frequency of each O&M task, also to be included in the Management Plan.
2. Description of potential operating problems:

- a. Description and analysis of potential operation problems;
  - b. Sources of information regarding problems; and
  - c. Common and/or anticipated remedies.
3. Description of routine monitoring and laboratory testing:
- a. Description of monitoring tasks;
  - b. Description of required laboratory tests and their interpretation;
  - c. Required QA/QC; and
  - d. Schedule of monitoring frequency and date, if appropriate, when monitoring may cease.
4. Description of alternate O&M:
- a. Should systems fail, alternate procedures to prevent undue hazard; and
  - b. Analysis of vulnerability and additional resource requirements should a failure occur.
5. Safety plan:
- a. Description of precautions, of necessary equipment, etc., for site personnel; and
  - b. Safety tasks required in event of systems failure.
6. Description of equipment:
- a. Equipment identification;
  - b. Installation of monitoring components;
  - c. Maintenance of site equipment; and
  - d. Replacement schedule for equipment and installed components.
7. Records and reporting mechanisms required:
- a. Daily operating logs;
  - b. Laboratory records;
  - c. Records for operating and maintenance costs;

- d. Mechanism for reporting emergencies;
- e. Personnel and maintenance records;
- f. Contents of periodic progress reports described in Task IV.A and providing details on how Task IV. A requirements will be met; and
- g. Monthly/annual reports to State agencies.

#### C. Cost Estimate

The Respondent shall develop cost estimates of the Corrective Measures for the purpose of assuring that the Respondent has the financial resources necessary to construct and implement the Corrective measures. The cost estimate developed in the Corrective Measure Study shall be refined to reflect the more detailed/accurate design plans and specifications being developed. The cost estimate shall include both capital and operation and maintenance costs.

#### D. Construction Quality Assurance Objectives

The Respondent shall identify and document the objectives and framework for the development of a construction quality assurance program including but not limited to the following: responsibility and authority; personnel qualifications; inspection activities; sampling requirements; and documentation.

#### E. Health and Safety Plan

The Respondent shall prepare a Health and Safety Plan or modify the Health and Safety Plan developed for the RCRA Facility Investigation to address the activities to be performed at the facility to implement the corrective measures.

#### F. Sampling and Analysis Plan Revision

Respondent shall update the Sampling and Analysis Plan, including the QAPP, during each phase of the project, as appropriate, to reflect changes in the following: responsibility and authority; personnel qualifications; inspection activities; sampling requirements; documentation, and other changes to the sampling and analysis program.

#### G. Final CMI Design

The Final CMI Design submittal shall consist of the Final Design Plans and Specifications (100% complete), the Respondent's Final Cost Estimate, the Final Draft Operation and Maintenance Plan, Final Quality Assurance Plan, Final Project Schedule, and Final Health and Safety Plan specifications. The quality of the design documents should be such that the Respondent would be able to include them in a bid package and

invite contractors to submit bids for the construction project.

### TASK III: CORRECTIVE MEASURES CONSTRUCTION

Following EPA approval of the Final CMI Design Report, the Respondent shall develop and implement construction in accordance with procedures, specifications, and schedules in the EPA-approved Final CMI Design Report and the EPA approved CMI Work Plan. During the Construction Phase, Respondent will continue to submit periodic progress reports. The Respondent shall also implement the elements of the approved O&M plan.

The Respondent shall update the Sampling and Analysis Plan, including the QAPP, during the Construction Phase, as appropriate, to reflect changes in the following: responsibility and authority, personnel qualification, construction quality assurance, inspection activities, documentation, and other changes affecting quality assurance.

The Respondent shall conduct the following activities during construction:

#### A. Inspections

1. Respondent will conduct inspections to monitor the construction and/or installation of components of the Corrective measures. Inspections shall verify compliance with all environmental requirements and include, but not limited to, review of air quality and emissions monitoring records, waste disposal records (e.g. RCRA transportation manifests), etc, as applicable. Inspections will also ensure compliance with all health and safety procedures. Treatment and/or disposal equipment will be operationally tested by the Respondent. The Respondent will certify that the equipment has performed to meet the purposes and intent of the specifications. Retesting will be completed where deficiencies are revealed.

2. When all construction is complete, the Respondent shall notify EPA for the purposes of conducting a final inspection. The final inspection will consist of a walk through inspection of the project site. The inspection is to determine whether the project is complete and consistent with contract documents and the EPA approved corrective measures. Any outstanding construction items will be identified and noted. If necessary, Respondent shall notify EPA upon completion of any outstanding construction items and another final inspection consisting of a walk-through inspection of the project site to confirm all outstanding items have been resolved.

#### B. CMI Report

Upon completion of construction and an initial period, not to exceed fourteen (14) days, of performance monitoring after starting, and in accordance with the schedule included in the Management Plan, Respondent will prepare and submit a CMI Report.

### TASK IV: REPORTS

The Respondent shall prepare plans, specifications, and reports as set forth in Tasks I through III



to document the design, construction, operation, maintenance, and monitoring of the corrective measure. The documentation shall include, but not be limited to the following:

#### A. Progress Reports and Assessment Reports

##### Quarterly

The Respondent shall provide the EPA with signed, semi-annual progress reports containing:

1. A description of the work performed during the preceding monitoring interval and estimate of the percentage of the CMI completed;
2. Summaries of all findings;
3. Summaries of all changes made in the CMI during the reporting period;
4. Summaries of all contacts with representative of the local community, public interest groups, or State government during the reporting period;
5. Summaries of system performance during the reporting period including a summary of all problems or potential problems encountered or anticipated during the reporting period;
6. Actions being taken to rectify problems;
7. Changes in personnel during the reporting period;
8. Projected work for the next reporting period; and
9. Copies of daily reports, inspection reports, laboratory/monitoring data, etc.

##### Annual Progress Reports and Assessment Reports

Annual Progress Reports, the CMI Assessment Report of the initial recovery network and the Five-Year Assessment Reports shall contain:

1. A narrative summary of principal activities conducted during the reporting period,
2. Graphical or tabular presentations of monitoring data, including but not limited to average monthly system pumping rates and throughput, efficiency, groundwater levels and flow direction, and groundwater quality,
3. A schedule of sampling and field activities to be performed in the reporting period, and
4. An O&M Evaluation. The O&M Evaluation shall assess performance of the corrective measure over time and provide one basis for EPA's Five-Year evaluation of the corrective

measure. Annual O&M Evaluation shall include:

- a. Summarized data representing corrective measure performance during the reporting period;
- b. Any proposed changes to the corrective measure and summary of changes to have been previously made;
- c. Isoconcentration maps for each contaminant of concern listed in the Order and any other hazardous constituent identified above its MCL;
- d. Statistical assessment of the progress of the corrective measure towards achievement of media clean-up standards;
- e. When appropriate, notification that the media cleanup standards have been achieved.

An Annual Progress Report shall not be required for any year in which the Respondent is required to submit a Corrective Measures Five-Year Assessment Report.

#### B. CMI Work Plan

The Respondent shall submit a CMI Work Plan as outlined in Task I. The QAPP, included with the CMI Work Plan, will be revised, as appropriate, throughout the CMI.

#### C. The CMI Design Report

The CMI Design Report shall include:

1. A summary of activities performed and data generated during Corrective Measure Design, including results and interpretation of treatability studies;
2. Draft detailed Corrective Measure Design Plans and Specifications reflecting the design work to be completed;
3. Final performance criteria for the corrective measures, consistent with comments to have been provided by EPA on the Conceptual Design proposed in the Management Plan;
4. Proposal of means to evaluate system performance against media cleanup standards listed in the FDRTC and any amendments thereto;
5. A Final O&M Plan;
6. A revised Cost Estimate;
7. Revision to the Sampling and Analysis Plan, including the QAPP, to address sampling

activities to be performed during the Corrective Measures Construction Phase and Evaluation Period including the sampling activities, sample size, sample locations, frequency of testing, acceptance and rejection criteria, and plans for correcting problems as addressed in the project specification;

8. Sampling and construction activities to be performed during the Corrective Measure Construction Phase;

9. Proposed changes to the Project Schedule, if appropriate, with emphasis on short-term Construction schedule. These proposed changes in schedule also will be included in the revised Management Plan.

#### F. CMI Report

The Respondent shall submit the CMI Report as outlined in Task III to this SOW. The CMI Report shall describe activities performed during construction, provide actual specifications of the implemented remedy, and provide a preliminary assessment of CMI performance. The CMI Report shall include, but not be limited to, the following elements:

1. Synopsis of the corrective measure and certification of the design and construction;
2. Explanation of any modifications to the EPA-approved construction and/or design plans and why these were necessary for the project;
3. Listing of the criteria, established in the EPA-approved CMI Work Plan, for judging whether the corrective measure is functioning properly, and also explaining any modification to these criteria;
4. Certification by registered professional engineer that the construction is complete, consistent with contract documents, and the EPA-approved corrective measure, and that the equipment performs to meet the intent of the specifications;
5. Results of Facility monitoring, assessing the likelihood that the Corrective Measure will meet or exceed the media clean-up standards set forth in the FDRTC and any amendment thereto.

This report should include all of the daily inspection summary reports, inspection summary reports, inspection data sheets, problem identification and corrective measure reports, block evaluation reports, photographic reporting data sheets, design engineers' acceptance reports, deviations from design and material specifications (with justifying documentation), and as-built drawings, unless otherwise agreed to by EPA.